

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
8 January 2004 (08.01.2004)

PCT

(10) International Publication Number
WO 2004/004346 A1

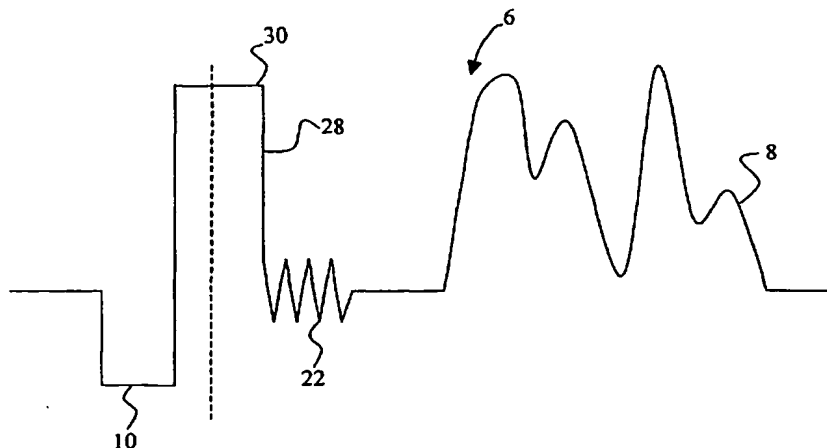
- (51) International Patent Classification⁷: **H04N 7/169**
- (21) International Application Number:
PCT/GB2003/002782
- (22) International Filing Date: 30 June 2003 (30.06.2003)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:
0215040.7 28 June 2002 (28.06.2002) GB
- (71) Applicant: **DWIGHT CAVENDISH SYSTEMS LIMITED** [GB/GB]; The Icon, Lytton Way, Stevenage, Herts SG1 1AH (GB).
- (72) Inventors; and
- (75) Inventors/Applicants (for US only): **TAN, Baolin** [CN/GB]; Dwight Cavendish Systems Limited, The Icon, Lytton Way, Stevenage, Herts SG1 1AH (GB); **ABDIN, Mazen** [GB/GB]; Dwight Cavendish Systems Limited, The Icon, Lytton Way, Stevenage, Herts SG1 1AH (GB).
- (74) Agent: **ABNETT, Richard, Charles**; Reddie & Grose, 16 Theobalds Road, London WC1X 8PL (GB).
- (81) Designated States (*national*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW.
- (84) Designated States (*regional*): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Declaration under Rule 4.17:

— as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii)) for the following designations AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES,

[Continued on next page]

(54) Title: AN IMPROVED METHOD AND APPARATUS FOR PROVIDING A COPY-PROTECTED VIDEO SIGNAL



(57) Abstract: A anti-copy programme signal is provided. Copies of the anti-copy video pulses made on a video recorder experience reduced quality and interference in playback making them unpleasant to watch. The uncopied signal can be viewed without any material effect on picture quality. The signal comprises a pulse (28) added to each line (6) of the signal throughout both the visible picture region and throughout the vertical blanking region (12), as well as a first modulated wave-form (34) added to the vertical synchronisation pulses (16) of the signal and a second modulated wave-form (36) added to several lines (6) of the picture signal before the vertical blanking section (12). The presence of all three of these features together has been found to provide a surprising accumulative effectiveness in causing interference in the reproduction of the modified video signal during playback of the copied video signal, that is greater than the effectiveness provided by the different features taken separately.

BEST AVAILABLE COPY

WO 2004/004346 A1



FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZM, ZW, ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG)

Published:

— with international search report

— before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

BEST AVAILABLE COPY

INTERNATIONAL SEARCH REPORT

BEST AVAILABLE COPY

Internat Application No
PCT/GB 03/02782

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 H04N7/169

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 H04N

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the International search (name of data base and, where practical, search terms used)

EPO-Internal, COMPENDEX, INSPEC

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	FOEDE W: "VIDEO COPY PROCESSOR" ELEKTOR ELECTRONICS, ELEKTOR PUBLISHERS LTD. CANTERBURY, GB, vol. 23, no. 260, 1 November 1997 (1997-11-01), pages 28-33, XP000742706 ISSN: 0268-4519	1, 33, 34, 67, 68, 70-72
Y	page 29, column 3 -page 30, column 1; figure 1 page 30, column 2, line 5 page 30, column 3 -page 31, column 1	2, 29-32, 35, 36, 69
Y	EP 0 831 648 A (SONY CORP) 25 March 1998 (1998-03-25) abstract --- -/--	2, 29-32, 35, 36, 69

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

* Special categories of cited documents :

- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier document but published on or after the international filing date
- *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- *O* document referring to an oral disclosure, use, exhibition or other means
- *P* document published prior to the international filing date but later than the priority date claimed

- *T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- *X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- *Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- *&* document member of the same patent family

Date of the actual completion of the international search

31 October 2003

Date of mailing of the international search report

10/11/2003

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3016

Authorized officer

Schneiderlin, J

INTERNATIONAL SEARCH REPORT

Internat Application No
PCT/GB 03/02782

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	GB 1 571 386 A (IVS LTD) 16 July 1980 (1980-07-16) the whole document -----	1-72

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/GB 03/02782

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
EP 0831648	A	25-03-1998	JP 10093914 A	10-04-1998
			CN 1183005 A	27-05-1998
			EP 0831648 A2	25-03-1998
			US 6266480 B1	24-07-2001
<hr/>				
GB 1571386	A	16-07-1980	NONE	
<hr/>				